

q. Frequency response

Data collection scripts location:

/opt/svncommon/seisvn/seismic/HAM-ISI/X1/Scripts/DataCollection/

Data location:

/opt/svncommon/seisvn/seismic/HAM-ISI/X1/Data/unit_1/TransferFunctionData/

Plot data script location:

/opt/svncommon/seisvn/seismic/HAM-ISI/X1/Scripts/DataAnalysis/unit_1/

Figure location:

/opt/svncommon/seisvn/seismic/HAM-ISI/X1/Data/unit_1/Figures/

▪ **Local to Local Measurements**

This data collection has been done with four successive runs. The run scripts used were:

- First Run: TFcollect_100701_L2L_0p05to0p5Hz.m
- Second Run: TFcollect_100701_L2L_0p05to5Hz.m
- Third Run TFcollect_100701_L2L_5to200Hz.m
- Fourth Run: TFcollect_100701_L2L_200to800Hz.m

The table below summarizes the data acquisition parameters used for these measurements:

Run #	1	2	3	4
Fmin	0.05 Hz	0.05 Hz	5 Hz	200
Fmax	0.5 Hz	5 Hz	200 Hz	800
F Res	0.05Hz	0.05 Hz	0.1 Hz	0.1
N rep	30	25	30	30
H1 Drive Amp	550 Cts	28 Cts	6000 Cts	7000 Cts
H2 Drive Amp	550 Cts	28 Cts	6000 Cts	7000 Cts
H3 Drive Amp	550 Cts	28 Cts	6000 Cts	7000 Cts
V1 Drive Amp	550 Cts	12 Cts	6000 Cts	7000 Cts
V2 Drive Amp	550 Cts	12 Cts	6000 Cts	7000 Cts
V2 Drive Amp	550 Cts	12 Cts	6000 Cts	7000 Cts
Est Duration	72 mn	62 mn	40 mn	40 mn

This transfer functions collected are stored in the following files:

- First Run: 100701_L2L_0p05to0p5Hz_test13mat.mat
- Second Run: 100701_L2L_0p05to5Hz_test16.mat
- Third Run : 100701_L2L_5to200Hz_test13.mat
- Fourth Run: 100701_L2L_200to800Hz_test13.mat

The data is concatenated and plotted with:

- TFanalyze_100701_L2L.m

Once concatenated, the full transfer function is stored in a file called:

- HAM-ISI_LHO_Unit1_100702_L2L_Undamped.mat

It contains a structure called “Result” which has two fields:

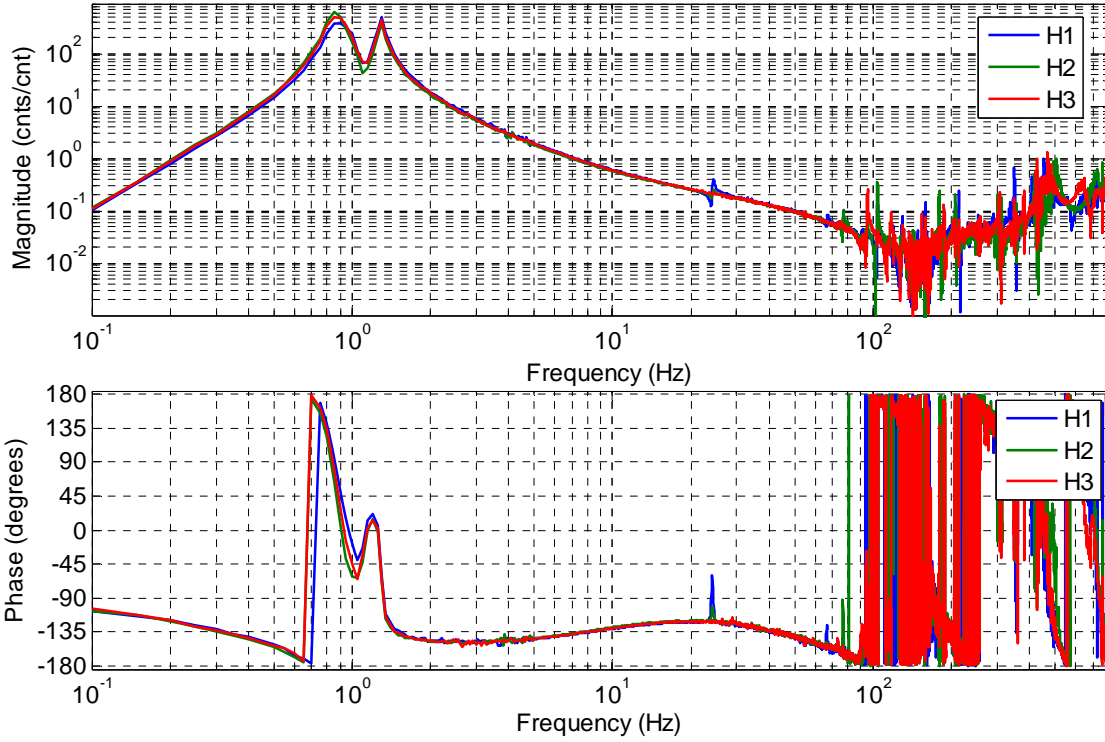
- Result(j).f: the frequency vector, where j is the drive #.
- Result(j).tf(k,:), the complex vector of the transfer function from actuator j to sensor k.

The table below summarizes the # convention for sensor and actuator:

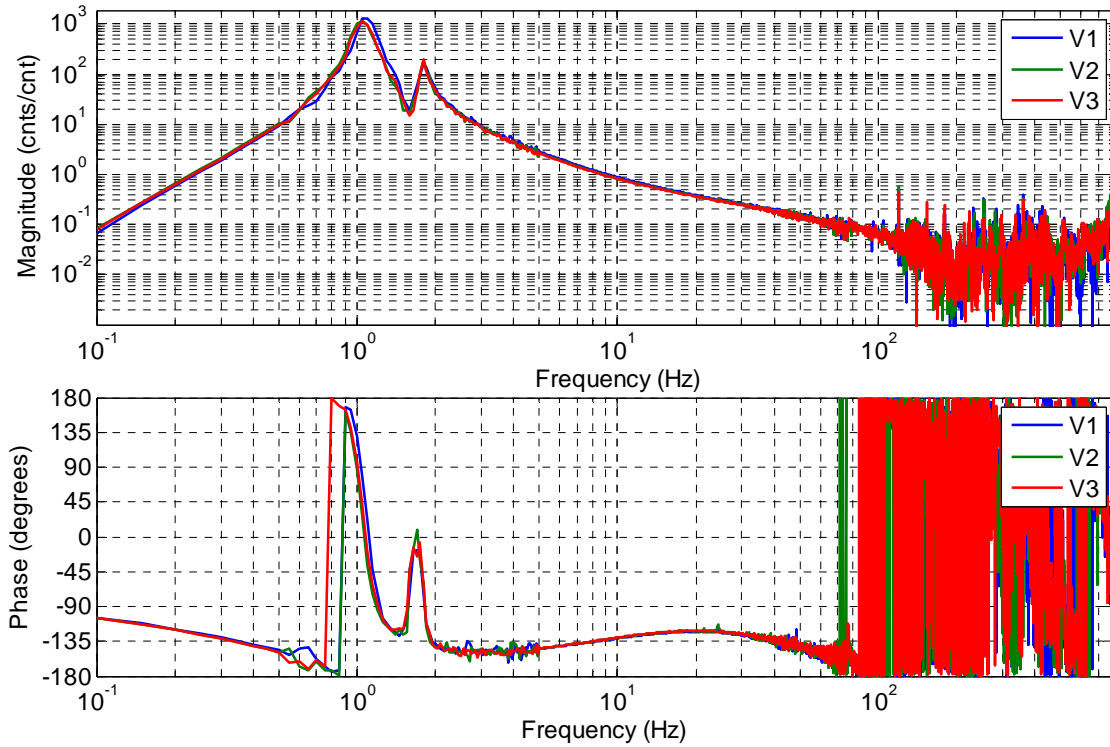
j=	1	2	3	4	5	6
Actuator	H1	H2	H3	V1	V2	V3

i=	1	2	3	4	5	6	7	8	9	10	11	12
Sensor	CPS H1	CPS H2	CPS H3	CPS V1	CPS V2	CPS V3	GS13 H1	GS13 H2	GS13 H3	GS13 V1	GS13 V2	GS13 V3

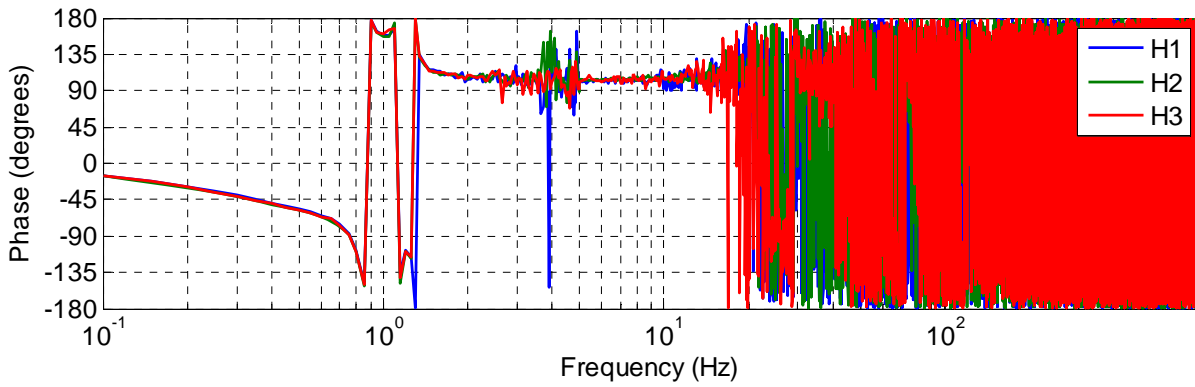
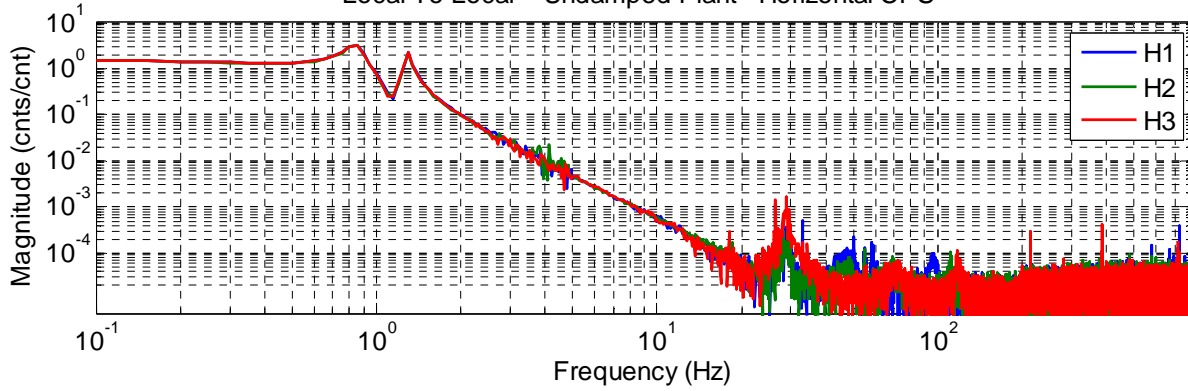
HAM-ISI, LHO, Unit #1, July 02, 2010
Local To Local - Undamped Plant - Horizontal GS13



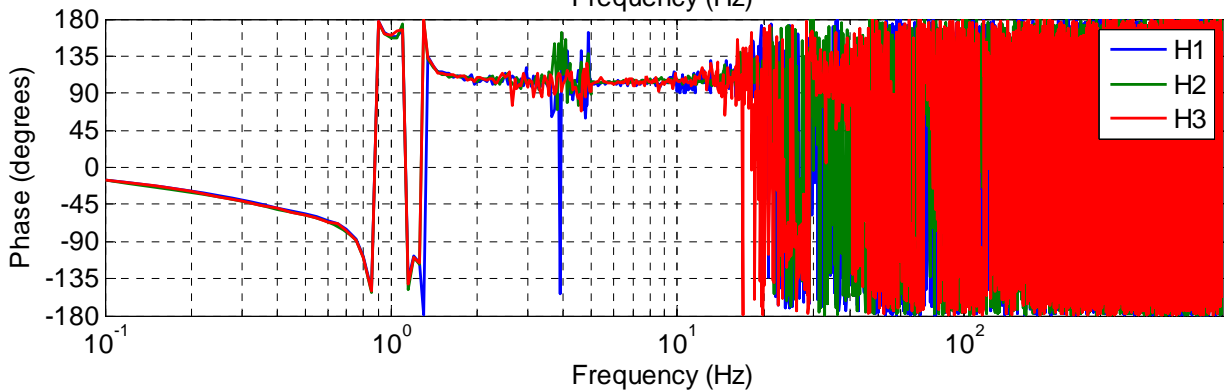
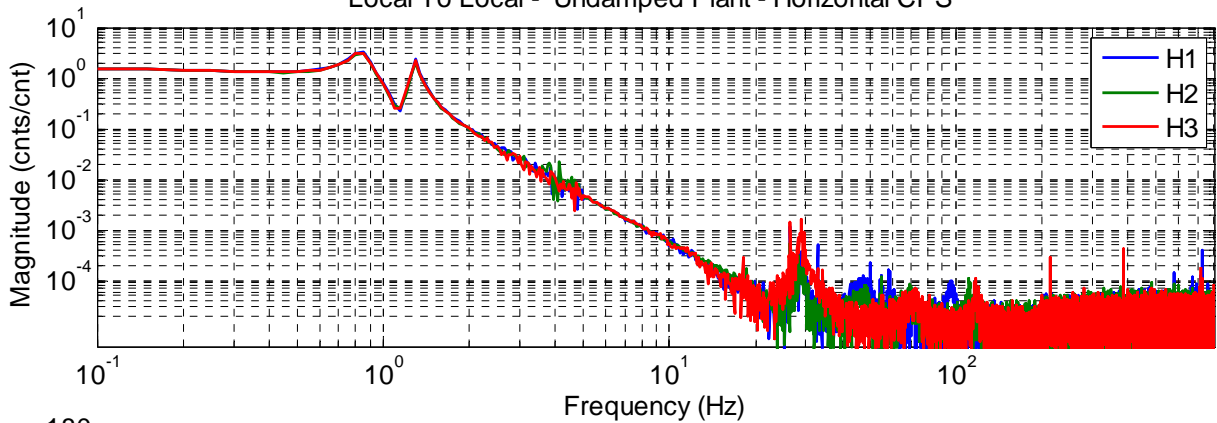
HAM-ISI, LHO, Unit #1, July 02, 2010
Local To Local - Undamped Plant - Vertical GS13



HAM-ISI, LHO, Unit #1, July 02, 2010,
Local To Local - Undamped Plant - Horizontal CPS



HAM-ISI, LHO, Unit #1, July 02, 2010,
Local To Local - Undamped Plant - Horizontal CPS



▪ **Modal to Modal Measurements**

This data collection has been done with three successive runs. The run scripts used were:

- First Run: TFcollect_100702_M2M_0p05to5Hz.m
- Second Run: TFcollect_100702_M2M_5to200Hz.m
- Third Run: TFcollect_100702_M2M_200to800Hz.m

The table below summarizes the data acquisition parameters used for these measurements:

Run #	1	2	3
Fmin	0.05 Hz	5 Hz	200
Fmax	5 Hz	200 Hz	800
F Res	0.05 Hz	0.1 Hz	0.1
N rep	60	30	45
X Drive Amp	75 Cts	6000 Cts	7000 Cts
Y Drive Amp	50 Cts	6000 Cts	7000 Cts
RZ Drive Amp	35 Cts	6000 Cts	7000 Cts
Z Drive Amp	85 Cts	6000 Cts	7000 Cts
RX Drive Amp	18 Cts	6000 Cts	7000 Cts
RY Drive Amp	18 Cts	6000 Cts	7000 Cts
Est Duration	132 mn	40 mn	55 mn

This transfer functions collected are stored in the following files:

- First Run: 100702_M2M_0p05to5Hz_test7.mat
- Second Run: 100702_M2M_5to200Hz_test6.mat
- Third Run : 100702_M2M_200to800Hz_test7.mat

The data is concatenated and plotted with:

- TFanalyze_100703_M2M.m

Once concatenated, the full transfer function is stored in a file called:

- HAM-ISI_LHO_Unit1_100703_M2M_Undamped.mat

It contains a structure called “Result” which has two fields:

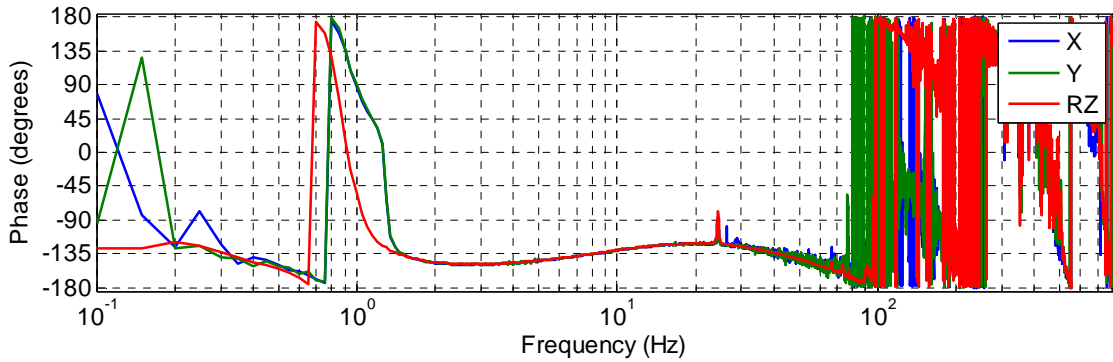
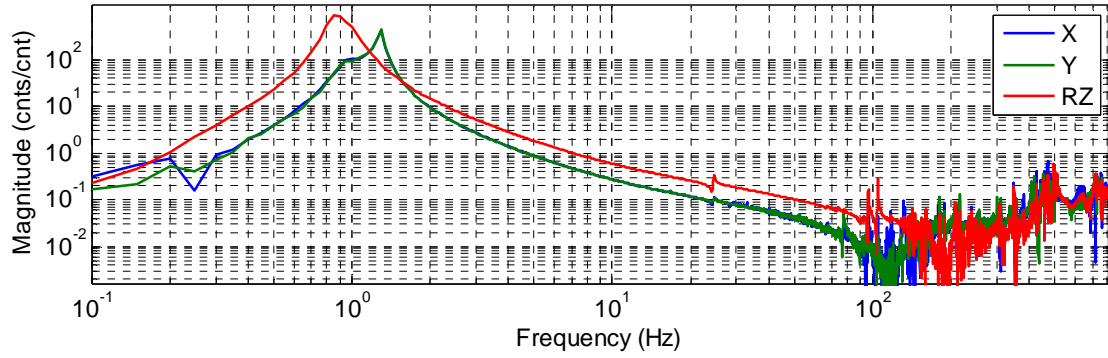
- Result(j).f: the frequency vector, where j is the drive #.
- Result(j).tf(k,:), the complex vector of the transfer function from actuator j to sensor k.

The table below summarizes the # convention for sensor and actuator:

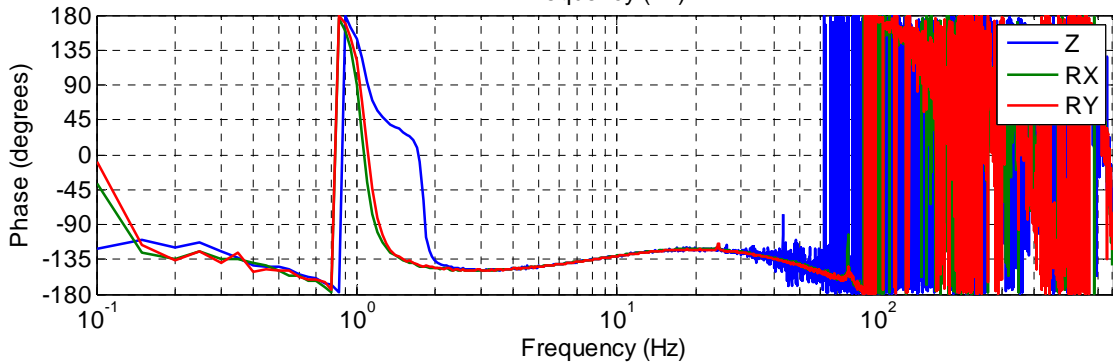
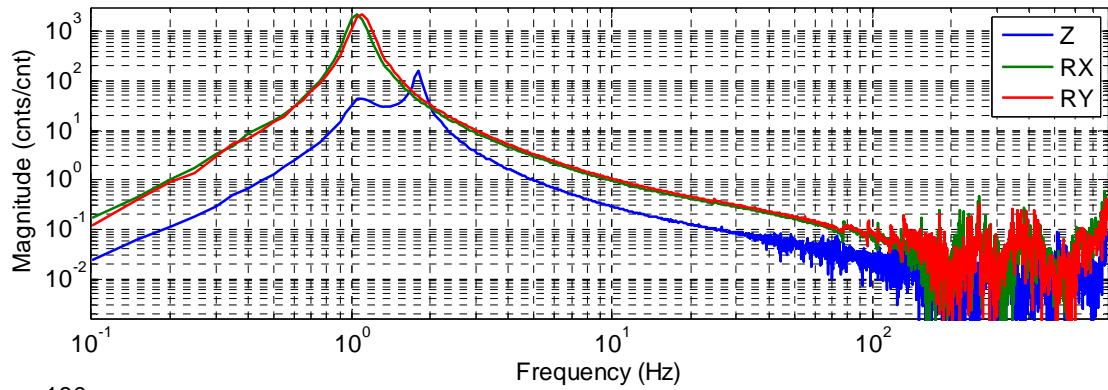
j=	1	2	3	4	5	6
Actuator	X	Y	RZ	Z	RX	RY

i=	1	2	3	4	5	6	7	8	9	10	11	12
Sensor	CPS X	CPS Y	CPS RZ	CPS Z	CPS RX	CPS RY	GS13 X	GS13 Y	GS13 RZ	GS13 Z	GS13 RX	GS13 RY

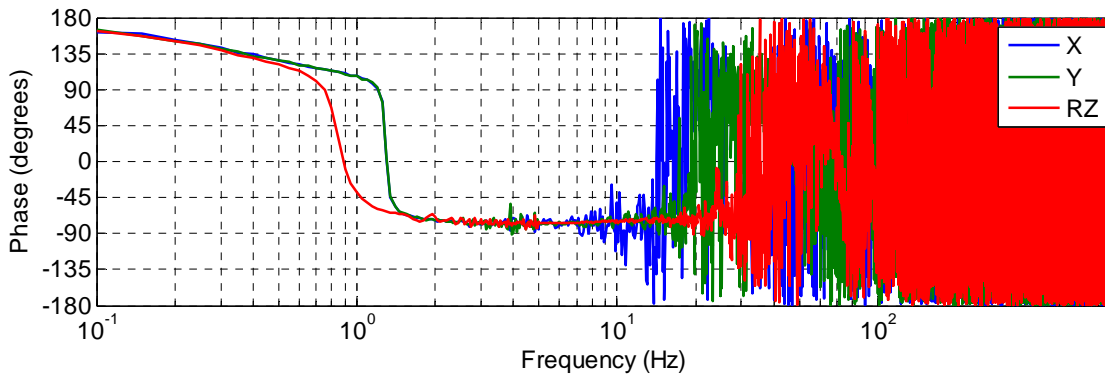
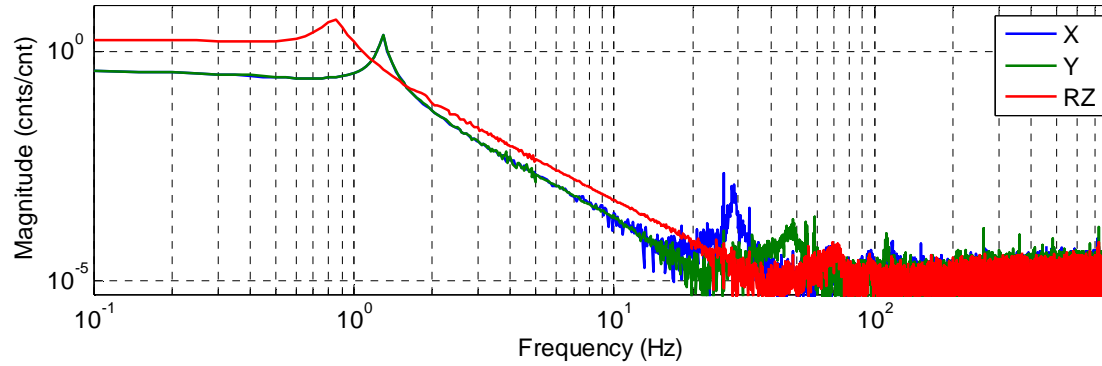
HAM-ISI, LHO, Unit #1, July 02, 2010, Modal To Modal - Undamped Plant - Horizontal GS13



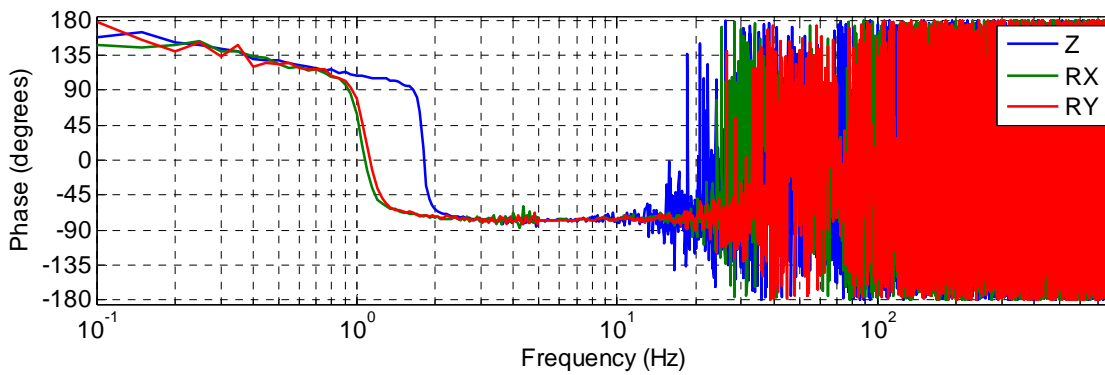
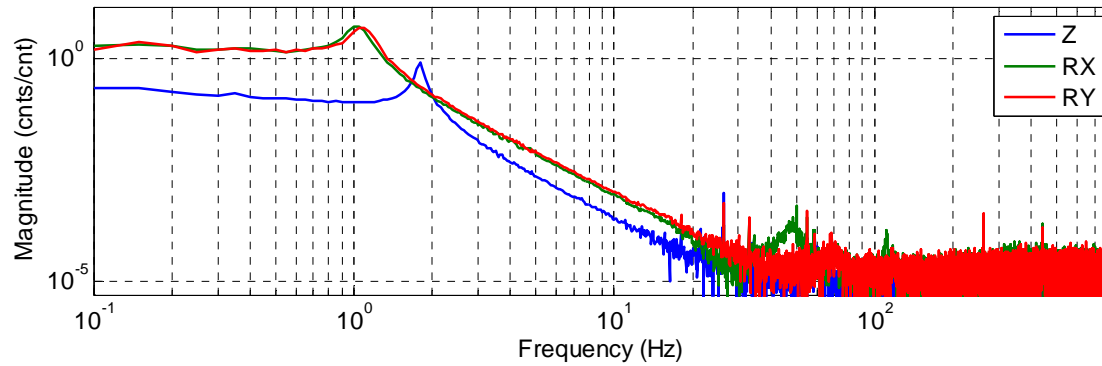
HAM-ISI, LHO, Unit #1, July 02, 2010, Modal To Modal - Undamped Plant - Vertical GS13



HAM-ISI, LHO, Unit #1, July 02, 2010, Modal To Modal - Undamped Plant - Horizontal CPS



HAM-ISI, LHO, Unit #1, July 02, 2010, Modal To Modal - Undamped Plant - Vertical CPS



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